

WHAT IS CLAIMED IS:

1. A rotor for a permanent magnet embedded motor, the rotor comprising:

5 a rotor core made of magnetic material and having a plurality of slits formed at corresponding poles; and

at least one bond magnet embedded in at least one of the slits,

10 wherein the at least one bond magnet is formed from a plate-shaped bond magnet, wherein at least one of a length dimension and a width dimension of the at least one bond magnet in a cross-section orthogonal to an axis of the rotor is greater than a corresponding dimension of the at least one of the slits, and the at least one bond magnet is fitted in the at least one of the slits under pressure.

15 2. A rotor according to claim 1, wherein the at least one bond magnet has a length dimension and a width dimension that are both greater than those of the at least one of the slit.

20 3. A rotor according to claim 1, wherein each of the slits has an opening section in one of an arc shape, a V shape and a channel shape.

4. A rotor according to claim 1, wherein at least one of the slits has a partially narrow section in the width dimension thereof.

25 5. A rotor according to claim 1, wherein the width dimension of the at least one of the slits changes in a length direction thereof.

30 6. A rotor according to claim 1, wherein each of the slits comprises a plurality of protrusions formed on an inner surface thereof to extend into a corresponding bond magnet fitted in the slit.

7. A rotor according to claim 1, wherein the at least one bond magnet is flexibly compressive and flexibly contracted in the corresponding slit.

5 8. A rotor according to claim 1, wherein the at least one bond magnet is flexibly compressive in at least one of a length direction and a width direction thereof and flexibly contracted in the corresponding slit in at least one of the length direction and the width direction.

10 9. A rotor according to claim 1, wherein at least one of the length dimension and the width dimension of the at least one bond magnet is approximately 5% larger than the corresponding dimension of the at least one of the slits.

15 10. A method for manufacturing a rotor for a permanent magnet embedded motor, the rotor comprising a rotor core made of magnetic material and having a plurality of slits formed at corresponding poles of the rotor core, the method comprising the steps of:

20 preparing at least one plate-shaped bond magnet, wherein at least one of a length dimension and a width dimension of the bond magnet in a cross-section orthogonal to a shaft of the rotor is greater than a corresponding dimension of a corresponding one of the slits;

25 placing against the rotor core a gate member having a tapered pathway with an exit opening smaller than an opening section of one of the slits; and

pressing in the bond magnet into the tapered pathway continuous with the slit, and pushing the bond magnet into the one of the slits while deforming the bond magnet.

11. A method for manufacturing a rotor according to claim 10, wherein the at least one plate-shaped magnet comprises a plurality of plate-shaped magnets, and the plurality of plate-shaped magnets are inserted in the corresponding respective slits under pressure.

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12. A method for manufacturing a rotor according to claim 10, wherein the one of the slits that has a partially narrow section and the at least one plate-shaped magnet is inserted under pressure in the one of the slits to cause a greater compression force in the least one plate-shaped magnet at an area thereof that is in contact with the partially narrow section in the one of the slits than compression forces working in the at least one plate-shaped magnet that is in contact with areas other than the partially narrow section.

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13. A method for manufacturing a rotor for a permanent magnet embedded motor, the rotor comprising a rotor core made of magnetic material and having a plurality of slits formed at corresponding poles of the rotor core, the method comprising the steps of:

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preparing plate-shaped bond magnets, in which at least one of the length dimension or width dimension of each of the bond magnets in a cross-section thereof orthogonal to a shaft of the rotor is greater than a corresponding dimension of each corresponding one of the slits;

magnetizing the bond magnets before the bond magnets are inserted in the slits; and

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press-fitting the bond magnets that are magnetized into the slits of the rotor core.

14. A method for manufacturing a rotor according to claim 13, wherein each of the bond magnets prepared is in a flat plate-shape, which is

magnetized and subsequently press fitted into each corresponding one of the slits of the rotor core.

5 15. A method for manufacturing a rotor according to claim 13, wherein each of the bond magnets is formed in a plate shape through rolling.

10 16. A method for manufacturing a rotor according to claim 13, wherein each of the bond magnets is formed in a plate shape through compression press machining.

15 17. A method for manufacturing a rotor according to claim 13, wherein the each of the bond magnets is flexibly compressible and flexibly contracted in the corresponding slit.

20 18. A method for manufacturing a rotor according to claim 13, wherein each of the bond magnets is flexibly compressive in at least one of a length direction and a width direction thereof and flexibly contracted in the corresponding slit in at least one of the length direction and the width direction.

25 19. A method for manufacturing a rotor according to claim 13, wherein at least one of the length dimension and the width dimension of each of the bond magnets is approximately 5% larger than the corresponding dimension of corresponding one of the slits.

20. A permanent magnet embedded motor comprising:
a rotor including a rotor core made of magnetic material and having a plurality of slits formed at corresponding poles and bond magnets embedded in the corresponding slits slits,

wherein each of the bond magnets is formed from a plate-shaped bond magnet, wherein at least one of a length dimension and a width dimension of each of the bond magnets in a cross-section orthogonal to an axis of the rotor is greater than a corresponding dimension of the corresponding one of the
5 slits, and the bond magnets are fitted in the corresponding slits under pressure.

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